DESERT SOUTHWEST REGION
10-YEAR PLAN FORMAL PRESENTATION
FISCAL YEAR 2019-2028

Figure 1 Dome Tap-Gila 161-kV Transmission Line Crossing SR95

OCTOBER 4, 2018
BUREAU OF LAND MANAGEMENT NATIONAL TRAINING CENTER
9828 N 31ST AVENUE
PHOENIX, AZ 85051

Western Area Power Administration

POWERING THE ENERGY FRONTIER

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1. MEETING AGENDA

Bureau of Land Management, National Training Center
Room Name: New Mexico
Thursday, October 4, 2018 | 10 a.m. Mountain Daylight Time (Arizona)

WEBEX VIDEO CONFERENCING AND CALL-IN NUMBER:

- To access the WebEx please click the below link and follow the on-screen prompts
  CLICK HERE
  Meeting number: 907 239 983
  Meeting password: HFYEMV2n
- To join the conference call, please dial (415)-527-5035. When prompted, enter conference code number 907 239 983 and then enter #.

OBJECTIVES:

- Provide follow up information on Draft 10-Year Plan Meeting hosted 31 July, 2018
- Provide additional project details in advance of the December 3, 2018 Prepayment Vote Meeting

AGENDA:

1. Welcome and Introduction
2. Pivot Strategy Overview
3. Seed Funding Explained
4. Bouse Upgrade Project
5. 2018 Prepayment Vote
   a. Bouse-Kofa 161-kV Rebuild
   b. Gila-Dome Tap 161-kV Rebuild
   c. Kofa-Dome Tap 161-kV Rebuild
   d. Coolidge-Valley Farms 115-kV Rebuild
6. Rates Analysis
   a. Rates Introduction
   b. Formal 10-Year Spend Plan
   c. Rates Analysis
7. 10-Year Plan Next Steps
   a. **December 3, 2018** Prepayment Vote Meeting
   b. **December 10, 2018** WAPA Wide 10-Year Plan Meeting (Denver, CO)

10 MINUTE BREAK

8. Southline Project Update

2. TABLE OF ACRONYMS

ACSR……..ALUMINUM CONDUCTOR STEEL REINFORCED
ACSS……..ALUMINUM CONDUCTOR STEEL SUPPORTED
APS……..ARIZONA PUBLIC SERVICE
AOA……..ANALYSIS OF ALTERNATIVES
BES……..BULK ELECTRIC SYSTEM
BOR……..BUREAU OF RECLAMATION
BSE……..BOUSE SUBSTATION
CAP……..CENTRAL ARIZONA PROJECT
CPC……..CAPITAL PLANNING COMMITTEE
CTC……..CUSTOMER TECHNICAL COMMITTEE
CX……..CATEGORICAL EXCLUSION
CIP……..CRITICAL INFRASTRUCTURE PROTECTION
DOE……..DEPARTMENT OF ENERGY
DSW……..DESERT SOUTHWEST REGION
EA……..ENVIRONMENTAL ASSESSMENT
E&OC……..ENGINEERING & OPERATING COMMITTEE
EVM……..EARNED VALUE MANAGEMENT
GFE……..GOVERNMENT FURNISHED EQUIPMENT
IDC……..INTEREST DURING CONSTRUCTION
IDIQ……..INDEFINITE DELIVERY/INDEFINITE QUANTITY
JPA……..JOINT PLANNING AGREEMENT
KCMIL……..THOUSANDS CIRCULAR MILS
MDCC……..MAINTENANCE DESIGN CONSTRUCTION COMMITTEE
MVA……..MEGA VOLT AMP
NEPA……..NATIONAL ENVIRONMENTAL POLICY ACT
NERC……..NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
NESC……..NATIONAL ELECTRICAL SAFETY CODE
NHPA……..NATIONAL HISTORIC PRESERVATION ACT
NRHP……..NATIONAL REGISTER OF HISTORIC PLACES
OGW……..OVERHEAD GROUND WIRE
O&M……..OPERATIONS AND MAINTENANCE
OPGW……..OPTICAL OVERHEAD GROUND WIRE
OGW……..OVERHEAD GROUND WIRE
PCB……..POLYCHLORINATED BIPHENYL
P-DP……..PARKER-DAVIS PROJECT
USDA……..UNITED STATES DEPARTMENT OF AGRICULTURE
RFP……..REQUEST FOR PROPOSAL
ROM……..ROUGH ORDER OF MAGNITUDE COST ESTIMATE
ROW……..RIGHT-OF-WAY
SCE……..SOUTHERN CALIFORNIA EDISON
TEP……..TUCSON ELECTRIC POWER
TYP……..10-YEAR PLAN
WAPA……..WESTERN AREA POWER ADMINISTRATION

3. TABLE OF FIGURES

4. PIVOT STRATEGY OVERVIEW

4.1 What Is The Pivot?

The pivot is a strategic one-time shift in the 10-Year Plan process that requires simultaneous approval of multiple upcoming capital improvement projects. The pivot will span two 10-Year Plan cycles (two calendar years) and incorporate simultaneous prepayment funding approvals across fiscal year 2019 - 2022. A successful pivot will conclude in December 2019 at the Prepayment Vote Meeting. Upon Completion, the 10-Year Plan will be in alignment with the Government's Budget Formulation Process such that prepayment funding will be approved two years in advance of the start of new projects.

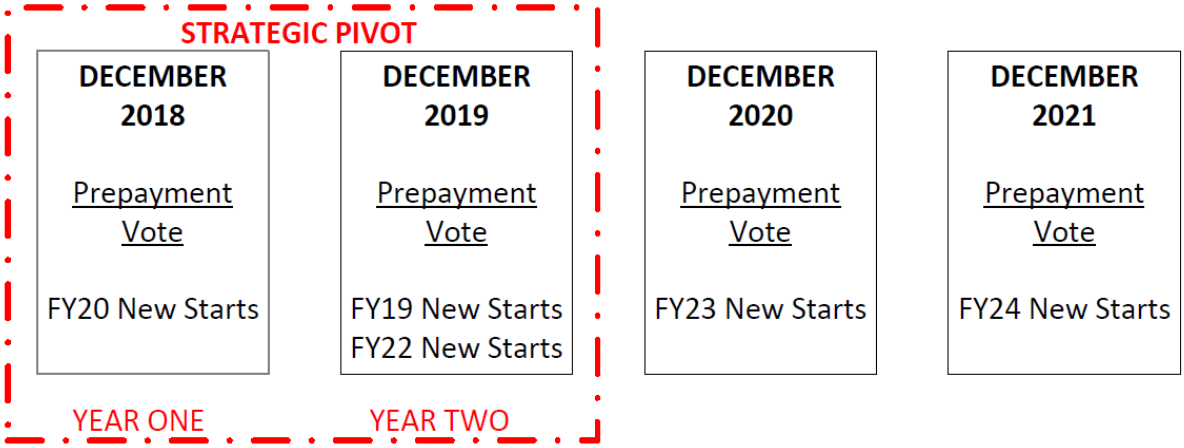


Figure 2 Pivot strategy - Prepayment Vote Schedule Four Year Look Ahead

4.2 Why Do We Need to Pivot?

The Federal Government Budget Formulation process begins two fiscal years prior to the execution year (current year). Historically, conducting the prepayment funding vote in the same year as the proposed construction start creates inconsistencies and unpredictability in the execution of DSW's annual budget, which is formulated two years prior. The result is last minute modifications to resource allocations in order to compensate for budgetary swings. Historically the two year grace period between budget formulation and prepayment funding approval was prone to changes and fluctuation due to competing priorities and uncertainty of approved prepayment funding. By aligning the customer prepayment vote with the budget formulation process, DSW can improve accuracy, consistency, and predictability in its budget formulation and execution. Aligning capital planning with budget formulation is imperative to the success of the 10-Year Plan.

4.3 Customer Benefits

As a result of a successful pivot, the customers will gain additional input into Analysis of Alternatives (AOA) study prioritization, planning, and results. Previously the AOAs were being performed concurrent with budget formulation processes, such that opportunities for customer input/engagement were limited. The strategic plan to pivot will provide customers with capital planning information in advance of budget formulation, therefore allowing sufficient time for WAPA to develop diverse, viable, and economical investment alternatives for customer consideration.

5. PROJECT LIFE CYCLE

The graphic below was created to illustrate the major milestones of a typical 10-Year Plan Project from project request (inception) to project financial close-out (completion).

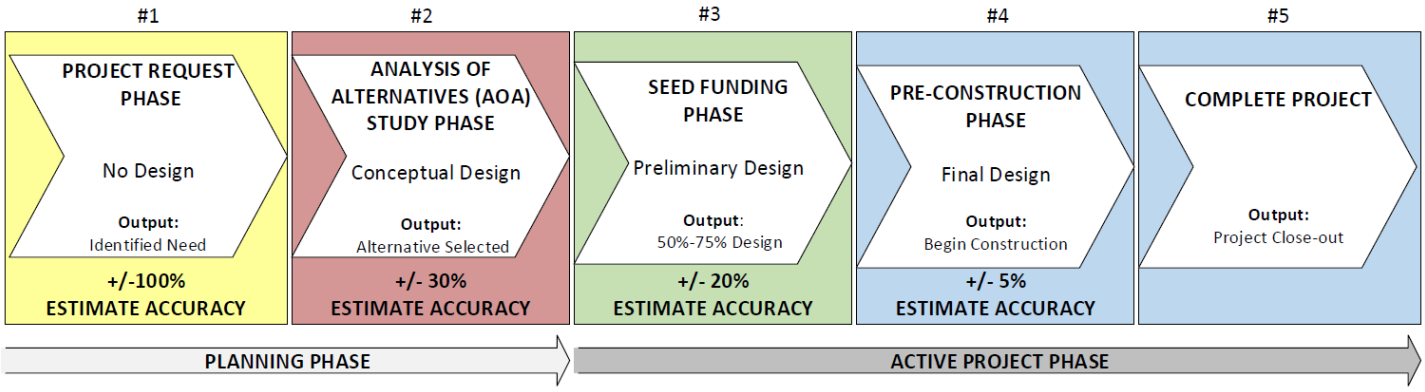


Figure 3 Project Life Cycle with Estimate Accuracy Progression

5.1 Project Request Phase

Project Request (PR) forms are required to initiate any capital improvement project with an anticipated budget great that one million dollars. PRs can be submitted by either WAPA internal stakeholders or external customer stakeholders. The PR marks the inception of the project and aims to identify a credible performance gap or deficiency between the current capabilities and capacities and those required in the mission need. Each PR is evaluated and prioritized based on compliance, reliability, and economic metrics. The submission of a PR does not guarantee the initiation of an active project. PRs are actively analyzed and those of the highest priority are handed off to the Analysis of Alternatives (AOA) study team for further investigation and development.

Project Request Forms can be found here:
https://www.wapa.gov/regions/DSW/Pages/10-year-capital-program.aspx

5.2 Analysis of Alternatives (AOA) Study

The Analysis of Alternatives (AOA) study phase is used to develop a conceptual design using the Project Request form information as the basis for the mission need. The AOA study aims to identify and analyze sufficient alternatives that are diverse, viable, and economically feasible, representing a suitable range of design alternatives. Each alternative is developed to the conceptual design level for the purposes of establishing a scope, schedule and cost estimate. AOA studies are performed in concert with WAPA customers and internal stakeholders from the point of identifying alternatives, to selecting the preferred alternative. The completion of an AOA study does not guarantee the initiation of an active project. Completed AOA studies are also subject to prioritization, competing priorities, resource availability, approved funding, and customer support. AOA studies must be completed for any project being considered for the budget formulation year.

5.3 Seed Funding Phase

Background

New in 2016 was the implementation of the seed funding mechanism. This mechanism was initiated in response to the inherent variability of pre-design construction estimates (+/-30% accuracy). In Figure 3 above, you can see the progression from the Project Request Phase (Box #1) to Project Completion Phase (Box #5) and the associated level of accuracy of the project estimate at each phase. Estimate accuracies are approximate targets and may vary depending on the nature of the project.

Transition to Active Project

The transition from the AOA Study Phase to the Seed Funding Phase is representative of the transition from O&M planning activities to formal active project activities. Once the Seed Funding Phase is initiated, a formal project management team is assigned to the project and year one of the active project is officially underway.

Improved Estimate Accuracy

While the AOA studies provide a +/-30% accurate project cost estimate based on conceptual design parameters, the seed funding phase improves to +/-20% estimate accuracy. The limitations of the AOA estimate exist in the inherent variables of the conceptual design and its impacts on lands/realty, the environment, outage coordination, procurement, market values, and a host of other cost drivers. Through the development of the preliminary design in the seed funded phase, these variables are identified, improving the estimate accuracy to within +/-20% accuracy. Once the design is deemed complete (100% drawings and specifications) at the end of the Pre-construction Phase, then the estimate accuracy is improved to +/-5%.

Seed Funding Budget Determination

Using conceptual design information developed in the AOA Study Phase, WAPA determines the amount of seed funding required to develop 50%-75% of the project design package. The project design package consists of the construction specifications, drawings, and associated preliminary procurement documents. The respective seed budget supports federal and contract labor only, no equipment is procured in the seed phase.

Funding Through Completion

Once a project has successfully been funded through the seed funding phase, it is then subject to review by WAPA and its customer's for full funding consideration (Figure 4, Box #4 & #5). In the event appropriations cannot be secured to fully fund the remainder of the project to completion, prepayment funds will be requested from the customers during the annual prepayment vote meeting in December.

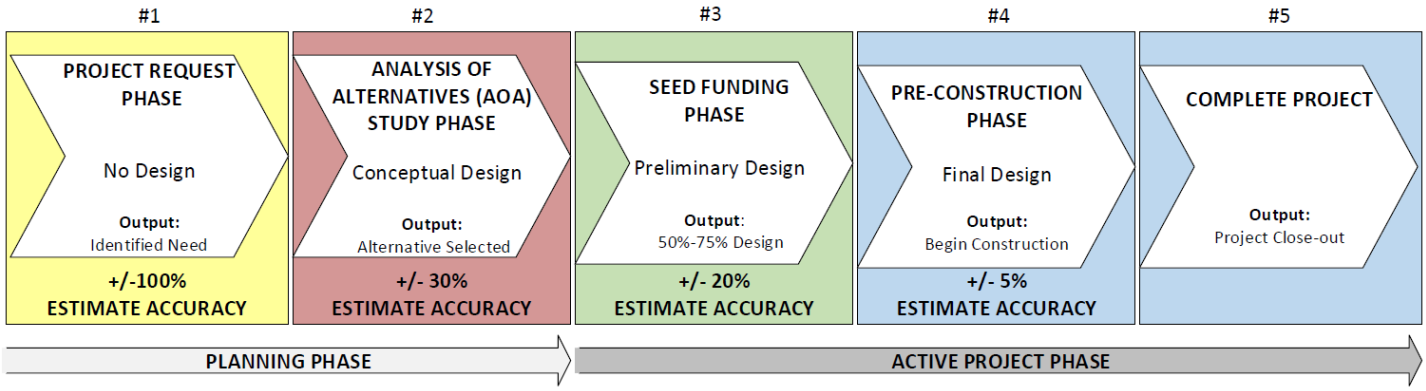


Figure 4 Project Life Cycle with Estimate Accuracy Progression

5.4 Preconstruction Phase

At the conclusion of the Seed Funding Phase, the project enters the Pre-Construction Phase which advances the partial design package from 50-75% to 100% final design. The final design includes the design drawings, specifications, and in some cases required procurement documents for solicitation of government furnished equipment. If a construction contractor is required then a solicitation package is generated and issued to execute all required contracts to complete the design package. This may include a variety of service, construction, and/or equipment contracts. At the conclusion of this phase the construction contractor will be issued a notice to proceed and field activities will begin.

6. PROJECT STATUS BARS

The following project status bars have been created to identify each phase of the 10-Year Plan process. As you review the information throughout the PowerPoint and handout booklet, look for these status bars for quick reference to the project phase.

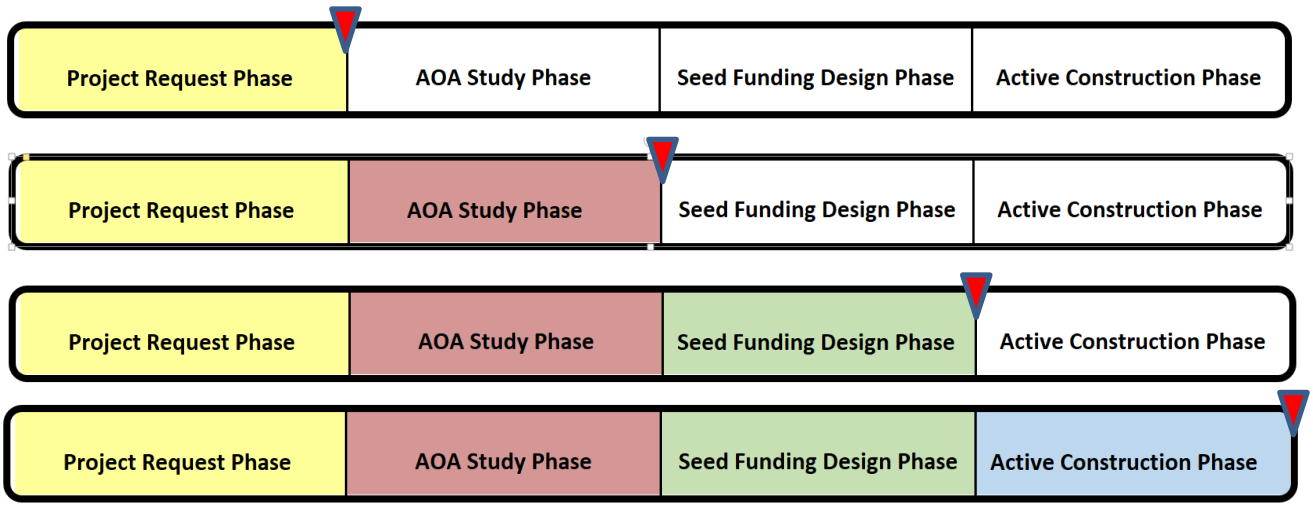


Figure 5 Color Coded Project Status Bar Indicators

The project status bars are color-coded to coincide with the estimate accuracy and design status of the Project Life Cycle figure previously reviewed.

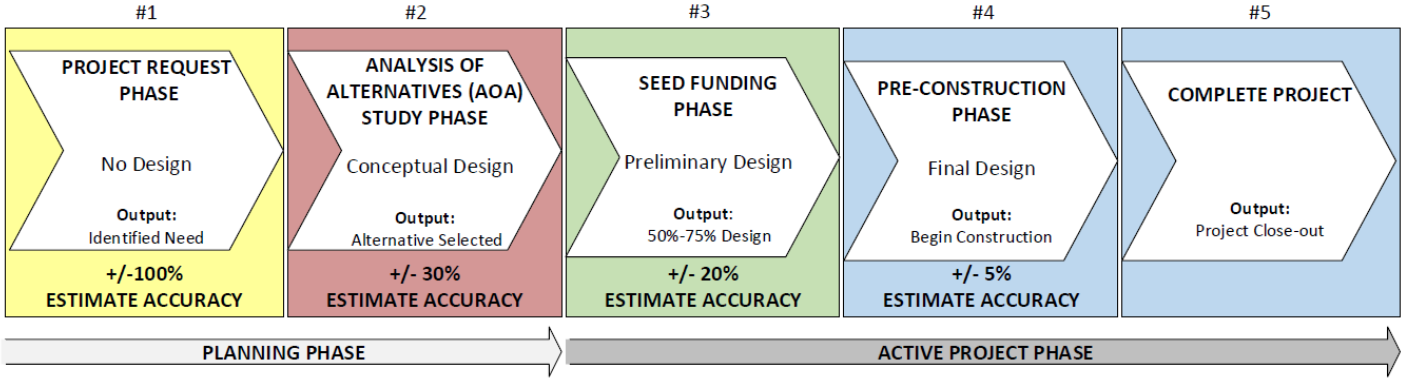


Figure 6 Project Life Cycle Milestones with Estimate Accuracies

7. SEED FUNDED PROJECT: BOUSE UPGRADE

Project Request Phase	AOA Study Phase	Seed Funding Design Phase	Active Construction Phase

Beginning in October 2018 (Fiscal Year 2019) DSW will initiate seed funding for the Bouse Upgrade Project with appropriated funding budgeted at $816,000. The objective is to begin preliminary design and generate a refined total project estimate for prepayment customer review and eventually consideration for full project funding in the December 2019 Prepayment Vote Meeting. In this section you will find details and information from the AOA study that was completed on the Bouse Upgrade Project in late summer of 2018. This AOA was completed as part of the 10-Year Plan Pivot Strategy and as a result all future AOAs will be conducted with full customer engagement in concert with the budget formulation process.

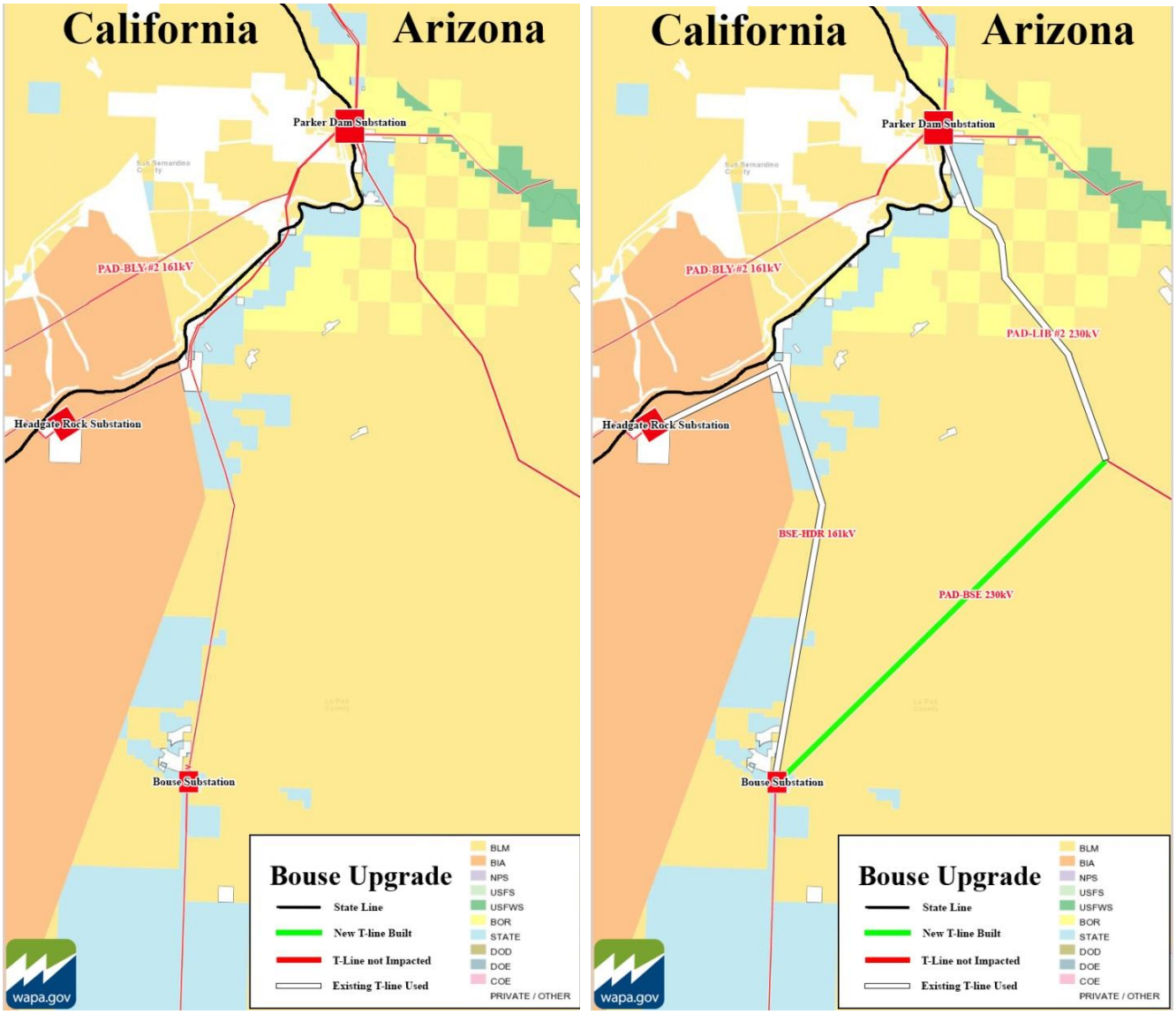


Figure 7 LEFT: Existing System Configuration. RIGHT: Bouse Upgrade System Configuration

7.1 Proposed Project Scope

For AOA study purposes, you will find this project on the 10-Year Spend Plan in section 9.2 as a single project. However, it is WAPA's intent to phase this project into manageable smaller scopes of work that can be spread across multiple years to mitigate unnecessary upward rate pressure.

STEP ONE: Build a new 230-kV transmission line

- Construct 15 miles of new double circuit 230-kV transmission line from Bouse substation to existing Parker-Liberty #2 transmission line
- Results in redirection of Parker-Liberty 230-kV line through Bouse Substation
- Approximately 60 steel monopole structures
- Proposed 1272 kcmil ACSR conductor or most economical to support load
- One overhead ground wire and one overhead optical ground wire.
- Construct across flat, unpopulated, BLM land

STEP TWO: Expand Bouse Substation

- Bouse substation rebuilt in 2012 to 230-kV standards, operated at 161-kV
- Three breaker ring-bus configuration
- Renovate into a 161-kV double-breaker-double-bus configuration
- Add two 230-kV bays in 4-breaker ring-bus configuration with two 230/161-kV transformers

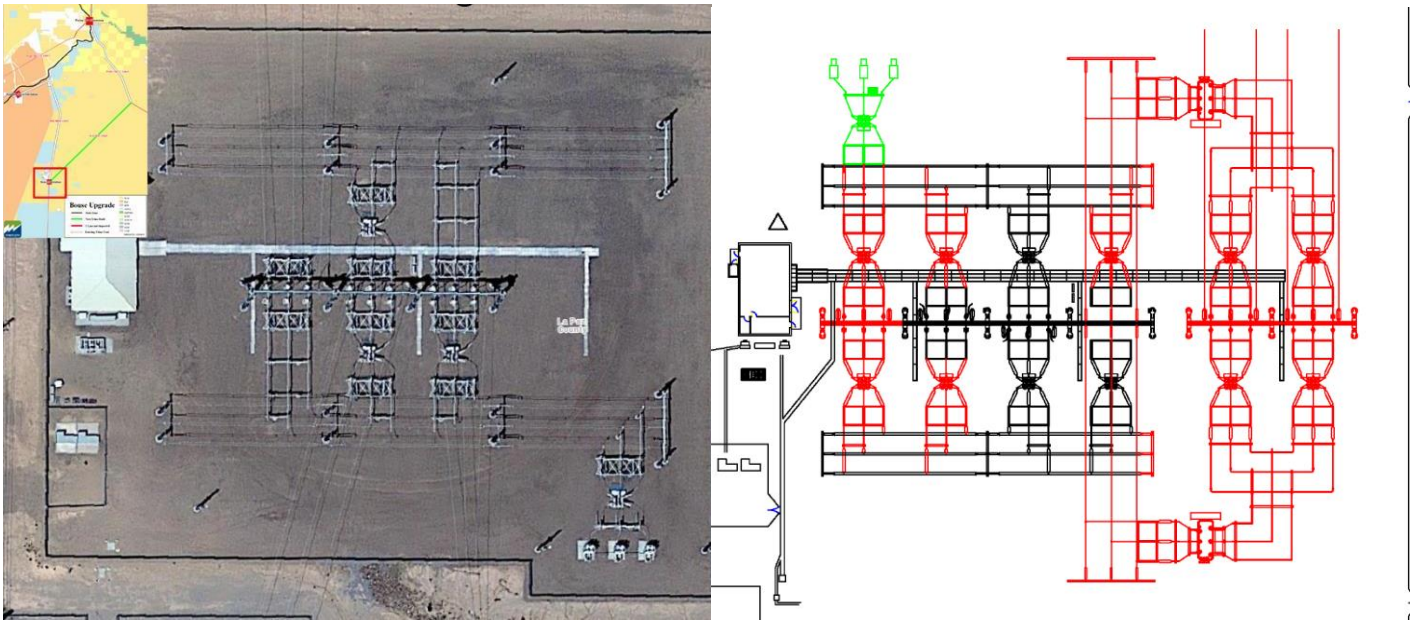


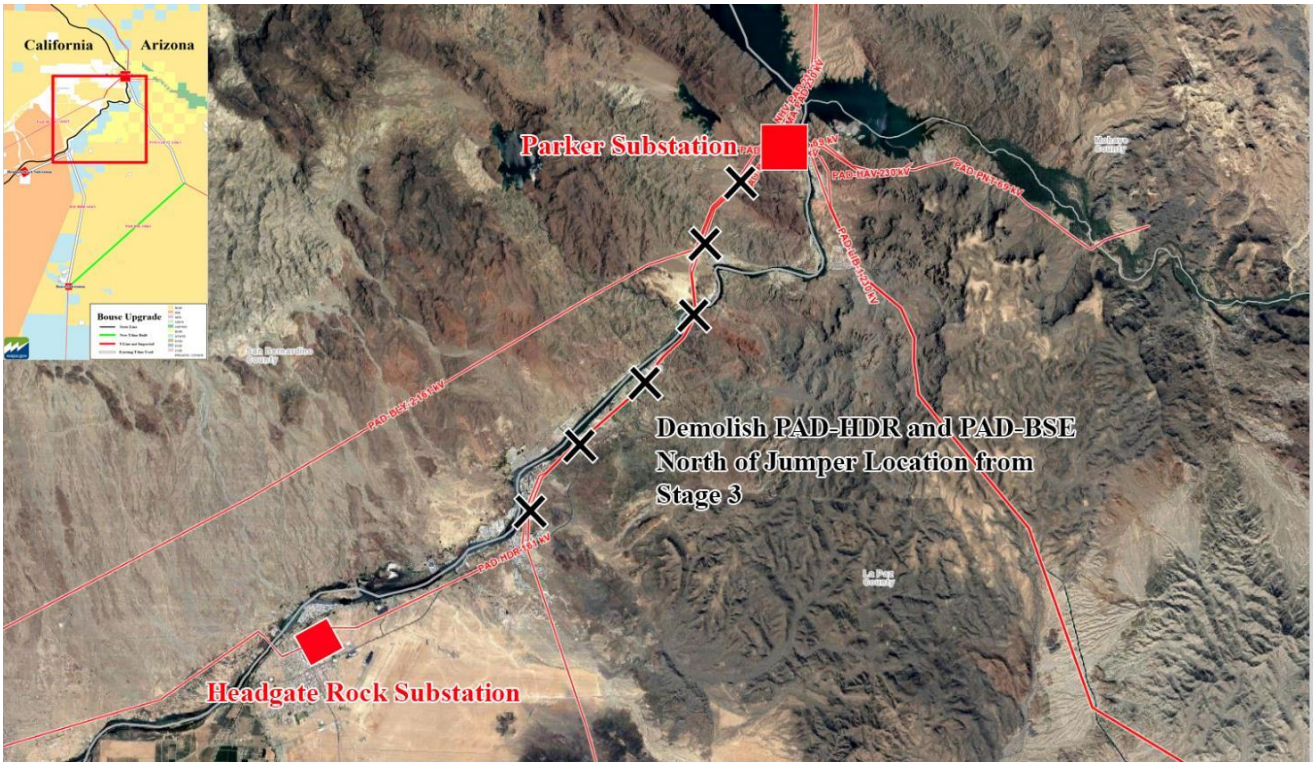
Figure 8 Left: Existing Bouse Substation. Right: Proposed Bouse Substation 230-kV Additions

STEP THREE: Connect Headgate Rock to Bouse utilizing a Jumper

- Install jumper between existing Parker-Headgate Rock 161-kV line and the existing Parker-Bouse 161-kV line
- Connect Bouse to Headgate Rock using a new Jumper
- New Headgate Rock-Bouse 161-kV line is established

STEP FOUR: Remove 20 miles of transmission line

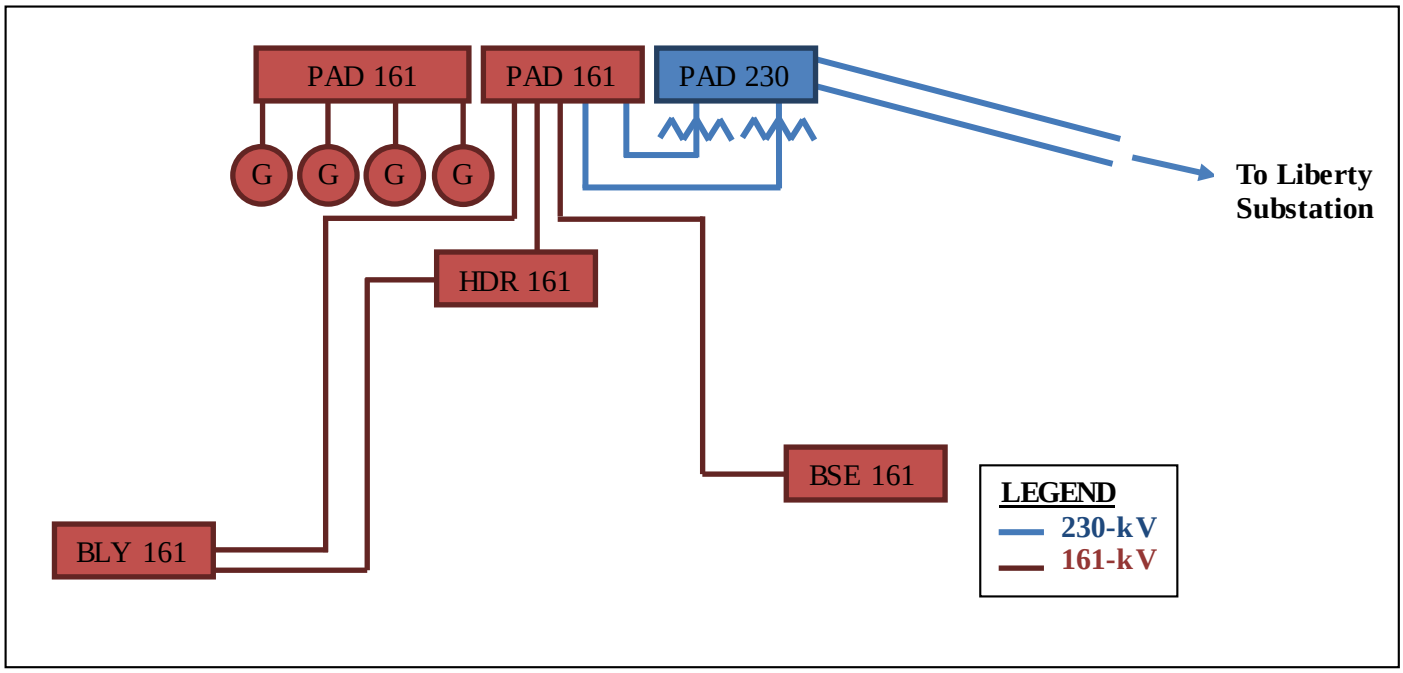
- Remove 10 of the 14 miles of single circuit line from Parker towards Headgate Rock.
- Remove 10 of the 22 miles of existing single circuit line from Parker towards Bouse.
- Relinquish existing ROW through Parker strip



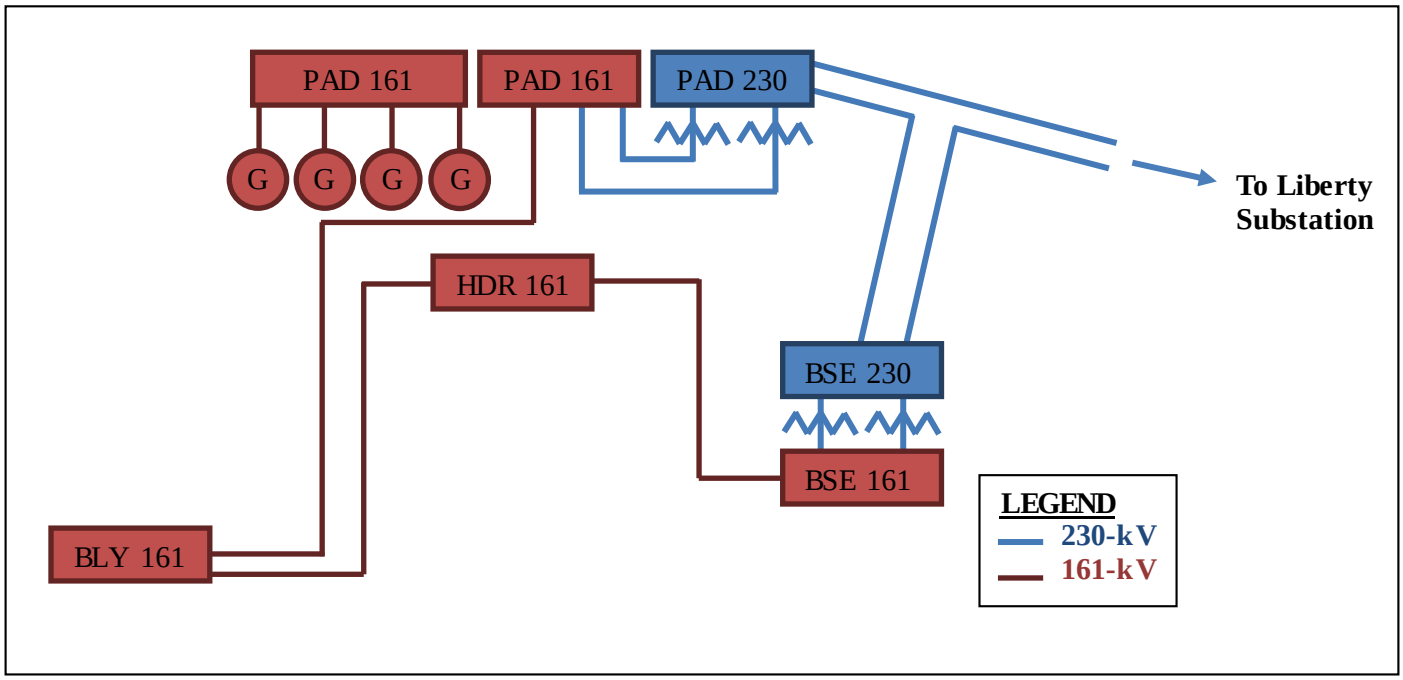
7.2 Proposed Project Advantages

- Proposed Bouse T-Line crosses mostly flat BLM land, away from public corridor
- Enhanced maintainability and reliability
- Viable path forward with predictable cost and schedule
- Removal of 20 miles of transmission line and 141 structures through Parker Corridor
- Optimized constructability without:
  - Potential marketing path de-ratings
  - Adding risk of meeting all existing contractual commitments
  - Impacting reliability or the operational configuration
  - Outage complexities present in the PAD-HDR/BSE project
- Loads can be met during construction with radial feed from Liberty and Parker
- System is no longer vulnerable to the impacts of either of the 230/161-kV transformers at Parker being offline (planned/unplanned), allowing for more maintenance/operational flexibility.

7.3 Existing South of Parker Configuration



7.4 Proposed South of Parker Configuration



7.5 Impacts to Parker Substation

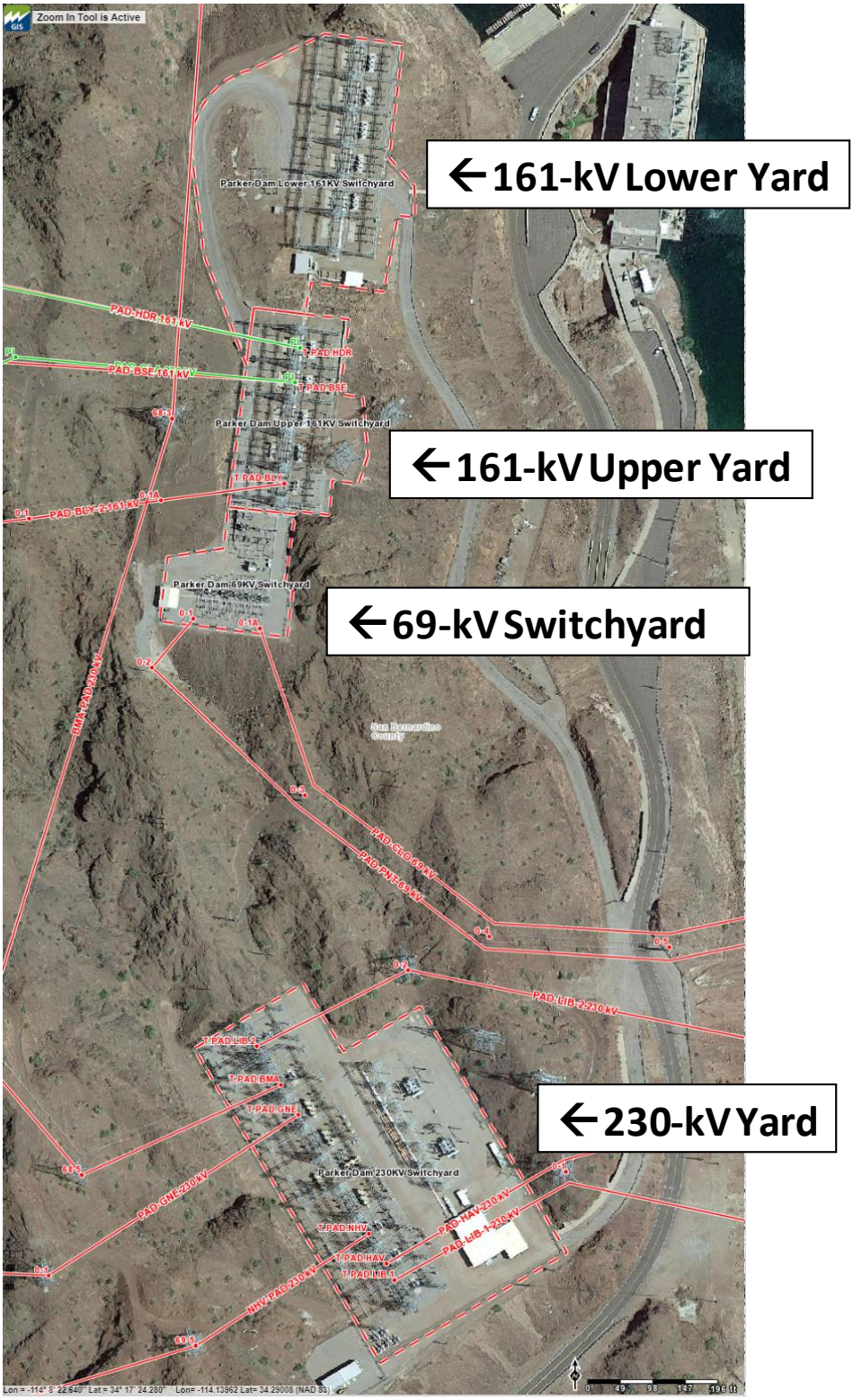


Figure 9 Aerial View of Parker 69-kV, 161-kV, & 230-kV Substations

Bouse Upgrade Project Benefits for Parker

- Removal of the Parker-Headgate Rock and the Parker-Bouse lines would:
  - Free up two bays in the upper Parker 161-kV yard
  - Avoid the need to replace two oil circuit breakers and 6 disconnect switches
  - Reduce load on the upper 161-kV yard
  - Create much needed space for future optionality
  - Reduce scope of work on Parker 161-kV rebuild effort planned for FY25
  - Allow for increased system reliability and flexibility for maintenance on any of the transformers at Parker or Bouse, extending the life of the transformers

Parker Substation Yards Historically in 10-Year Plan

- 161-kV upper and lower yards built in the late 1940's and upgraded in 1978
- Numerous options have been investigated since 2011 to mitigate reliability concerns while balancing economic viability
  - Upgrade to double-breaker-double-bus configuration
  - Rebuilding of main and transfer arrangement
  - Replacement of at-risk equipment in-kind
- Two canceled projects in the last five years:
  - 161-kV Replacement of disconnect switches (8 tandem/14 standard)
  - 161-kV Replacement of 9 oil breakers
- Parker substation rebuild efforts remain in the 5+ year 10-Year Plan window
  - 161-kV Yard currently in FY24 with a $10M+ placeholder
  - 230-kV yard currently in FY26 with a $5M+ placeholder
- Each scope has its own unique constraints between cost, operational/maintenance flexibility, outage sequencing, etc.

Parker Substation Reliability

- The existing main and transfer bus configuration makes outage scheduling extremely difficult
- Oil circuit breakers are 35+ years old
- Most disconnect switches are 40+ year old
- Equipment failure rates are increasing
- Repairs often require custom parts and lengthy repair windows
- Status-quo maintenance is inefficient and costly
- 161-kV substation provides a radial feed to the 69-kV substation which in turn serves a variety of customers.
- Currently maintenance is bottlenecked due to outage restrictions due to current loading on 230/161-kV transformers
- If one 230/161-kV transformer goes out of service, WAPA's committed load is constricted across the remaining 230/161-kV transformer
- Outage restrictions (up to several months) impede optimal maintenance cycles which negatively affect transformer life
- 230-kV yard is showing signs of steel structure twisting
- All yards are very congested and land locked. No room for any expansion or additional redundancy for loads (aka 69-kV tie)
- Transfer bay breaker shares a bay with a 230/161-kV transformer

7.6 South of Parker – Voltage Benefits

		Existing System			Proposed Layout		
Bus	**Outage**	**Pre-Voltage**	**Post-Voltage**	**Delta Voltage**	**Pre-Voltage**	**Post-Voltage**	**Delta Voltage**
Bouse 161	PAD-BSE 161 (P1) (worst P1 for Existing System)	0.98	0.91	0.07	N/A	N/A	N/A
Bouse 161	PAD-EGL 230 (P1) (worst P1 for Proposed Layout)	N/A	N/A	N/A	0.99	0.98	0.01
Wellton-Mohawk 161	GLA-WMS + GLA-DME 161 (P2 or P6) w/ no KOF caps	0.99	Divergence	Divergence	0.99	0.78	0.22
Wellton-Mohawk 161	GLA-WMS + GLA-DME 161 (P2 or P6) w/ two 15 MVAR KOF caps	1.00	0.84	0.16	1.00	0.92	0.08

8. 2018 PREPAYMENT VOTE

8.1 Prepayment Voting Ballot

Project Name	Prepayment Vote Amount
Bouse-Kofa 161-kV Rebuild	$26,520,000
Gila-Dome Tap 161-kV Rebuild	$7,130,000
Kofa-Dome Tap 161-kV Rebuild	$4,830,000
Coolidge-Valley Farms 115-kV Rebuild	$2,550,000
TOTAL PREPAYMENT VOTE PACKAGE	**$41,030,000**

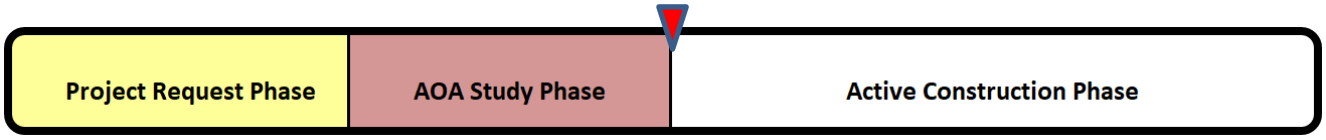
8.2 Pivot Project: Bouse-Kofa 161-kV Rebuild

Project Name	AOA Phase Estimate	Seed Phase Estimate [A]	Percent Change	Seed Funds [B]	Prepayment Vote Amount [C]
Gila-Dome Tap 161-kV Rebuild	$7,400,000	$7,630,000	3.01%	$500,000	**$7,130,000**
Kofa-Dome Tap 161-kV Rebuild	$5,360,000	$5,330,000	-0.56%	$500,000	**$4,830,000**
Coolidge-Valley Farms 115-kV Rebuild	$4,800,000	$3,350,000	-43.88%	$800,000	**$2,550,000**

[A]-[B] = [C]

Pivot Strategy

DSW's 10-Year Plan pivot strategy requires the full funding of the Bouse-Kofa 161-kV Rebuild effort, which includes two separate construction project efforts, phases I and II, respectively, in December of 2018. This funding requirement is necessary to achieve the goal of aligning the 10-Year Plan with the budget formulation process. Although the project will not be subject to the seed funding mechanism, partially funding the preliminary design effort, the customers will still be updated on the revalidated scope, schedule, and cost estimate at the completion of year one, when the design package is 50-75% complete.



Background

The Bouse (BSE) to Kofa (KOF) 161-kV transmission line is a single circuit, 84.3 mile line segment of the overall Parker-Gila 161-kV Transmission Line originally built in 1943.

The BSE-KOF line is located in western Arizona running south from Bouse substation to Kofa substation. Bouse substation is located just north of the junction of AZ Highways 72 and 95 in La Paz county. Kofa substation is located approximately 16 miles northeast of the city of Yuma in Yuma County. The terrain along the line is mostly low desert with multiple wash crossings and low rises. Toward the south end of the transmission line the terrain becomes more mountainous across the Castle Dome Mountains near Dome Tap.

The line was originally 78.9 miles long, constructed with three 300 kcmil hollow core copper conductors (Anaconda R178R2). Most of the wood H-Frame structures have been replaced with light-duty steel H-Frame structures, and only 82 wood structures remain. In 2006 a portion of the line was rerouted around the town of

Quartzsite. The reroute replaced 3.3 miles of the existing line through Quartzsite with 8.4 miles of three 954 kcmil ACSR conductors supported on single circuit steel monopoles.

Figure 10 Bouse-Kofa Existing Wood H-Frame Structure, February 2018

Project Justification

An Analysis of Alternatives (AOA) Study was performed in 2017 to identify various performance gaps and deficiencies associated with this line segment and to identify viable, diverse, and economical alternatives.

Performance gaps and deficiencies:

- NERC/NESC violations have been identified and need to be corrected
- Noted deterioration and unsafe structures are significant
- Access road(s) and right-of-way availability and conditions are sub-par
- Install fiber optic ground wire to meet current and future protection, control, communication, and security requirements

NERC/NESC Violations:

NERC requires all transmission line owners/operators to perform a Facility Rating Analysis of all transmission lines over 100-kV in order to determine the as-built condition and de-rate the line to that condition, or to mitigate the condition to achieve the design rating. There are 106 cases of phase-to-ground clearances and one phase-to-OGW of a crossing line clearance not meeting the minimum clearance required by the National Electrical Safety Code (NESC) and NERC.

Transmission Line Conditions:

There are 17 structures identified by maintenance forces as needing replacement with more expected when detailed ground inspection is completed.

Access Roads and ROW:

According to maintenance field inspection reports, there are numerous cases of access roads and right-of-way paths requiring improvement to facilitate construction and maintenance activities. In some cases access roads need to be created. A lack of prompt access for appropriate resources presents reliability, safety, and cost risks.

Communications Requirements:

Installing Optical Overhead Ground Wire (OPGW) provides an alternate and physically independent path for protection, control, and communication. Currently microwave provides the only communication path and the addition of an OPGW will allow for the future communication bandwidth needs to be met. Those needs include security, which is currently in the process of installing live feed video cameras and IT networks at substations. The addition of these systems will tax and soon bypass the current communications bandwidth provided by microwave.

Alternatives Studied

There were a total of five alternatives that were explored to provide a diverse range of viable, economically feasible design options. The feasibility/value of these alternatives was explored in regards to Compliance, Reliability and Economy. A detailed breakdown of each alternative can be found below.

- Alternative 1- Status Quo (Maintenance only)
- Alternative 2- Re-conductor and Replace failing wood poles in-kind
- Alternative 3- Re-conductor and Replace all wood poles with light-duty steel H-frame structures
- Alternative 4- Rebuild to 230-kV Standards operated at 161-kV using light-duty steel H-Frame structures
- Alternative 5- Inset Structures as needed to mitigate NERC/NESC violations

Preferred Alternative: Alternative #3- Rebuild with Light-Duty Steel H-Frame Structures

WAPA will replace 75.6 miles of three 300 kcmil Anaconda hollow core copper conductors with three 336.4 kcmil Oriole ACSS conductors, replace one steel OGW with OPGW, and install light-duty steel H-frame structures to replace the 82 wood structures left in the line segment. New light-duty steel H-frame steel structures will be installed as needed to correct clearance issues not corrected by stringing new ACSS conductor. Access roads will be improved as needed to facilitate construction.

Conceptual Project Estimate

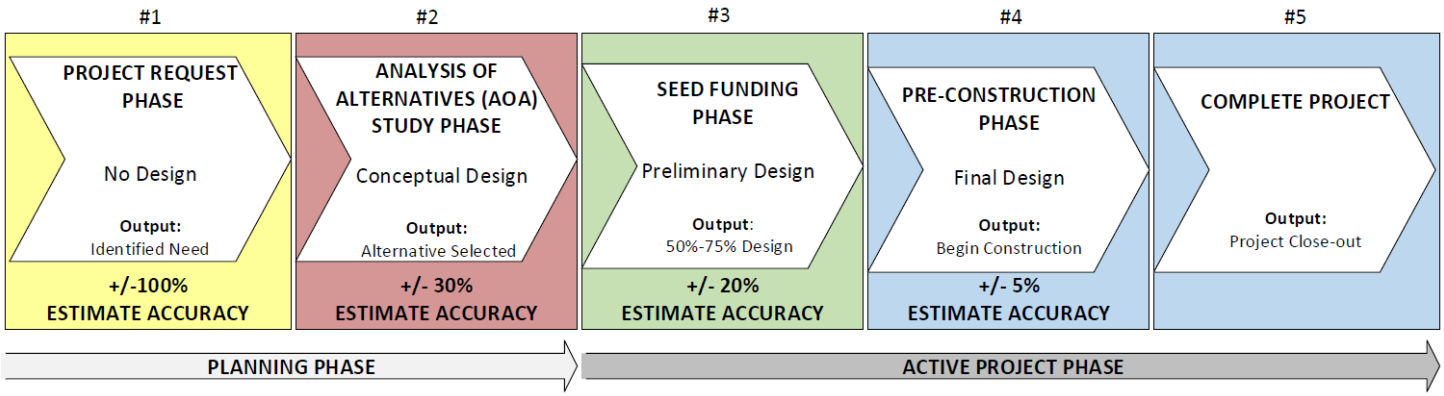


Figure 11 Project Life Cycle with Estimate Accuracy Progression

The below estimate was developed in the AOA study phase and is considered a conceptual design estimate. The $26,520,000 is the total estimated cost for the entire line segment, BSE to KOF. The BSE-KOF transmission line segment will be designed in its entirety from terminal end to terminal end. However, at the completion of design the line will be bifurcated into two separate project phases. The final design will determine the actual phasing split in terms of transmission line miles per phase. Each phase will be constructed as separate construction projects, each with its own budget reflective of the total line miles and degree of effort in that phase.

Cost Category	Project Phase I [A]	Project Phase II [B]	Total [C]	% of Budget
Administrative	$305,000	$305,000	$610,000	2%
Earned Value Management (EVM)	$0	$0	$0	0%
Design	$150,000	$150,000	$300,000	1%
Environmental	$295,000	$295,000	$590,000	2%
Land and Land Rights	$155,000	$155,000	$310,000	1%
Government Furnished Equipment (GFE)	$2,030,000	$2,030,000	$4,060,000	16%
Construction	$9,545,000	$9,545,000	$19,090,000	76%
Commissioning Activity	$150,000	$150,000	$300,000	1%
Subtotal	$12,630,000	$12,630,000	$25,260,000	
Management Reserve (5%)	$630,000	$630,000	$1,260,000	
TOTAL	**$13,260,000**	**$13,260,000**	**$26,520,000**	

[A]+[B] = [C]

**Total Project Budget reflects current market value to salvage the existing copper conductor and related hardware.*

Conceptual Project Phasing

For the purposes of planning in advance of the final design, DSW has split the total line segment budget in half to create place holders for each individual project phase. The budget estimate for each individual phase will be updated once the preliminary design is completed at the end of year one of the project. The project phases will be staggered by one year to aid in optimal constructability around outage windows. As a result the completion of each project phase will also by staggered by one or more years such that the cumulative rate impact of the entire line segment is minimized.

Conceptual Schedule Milestones

Conceptual Schedule Milestones	Project Phase I	Project Phase II
75% Design Package	September 2019	September 2019
Begin Construction	November 2020	November 2021
Complete Construction	April 2022	April 2023
Financial Closeout	October 2022	October 2023

Conceptual Phase I Scope

Design and construct 31.25 miles of 161-kV transmission line from structure 70-2 to Kofa Substation. Design includes replacing 43 wood structures, and selecting a new conductor that can be installed on existing and new light-duty steel H-Frame structures to eliminate NERC/NESC violations to the extent possible. It is anticipated some existing light-duty steel H-Frame structures will be replaced with taller structures. Preliminary design will analyze installing steel dead-end structures every 5 to 10 miles to prevent cascading failure.

Conceptual Phase II Scope

Design and construct 44.25 miles of 161-kV transmission line from Bouse Substation to structure 70-2. Design includes replacing 40 wood structures, and selecting a new conductor that can be installed on existing and new light-duty steel H-Frame structures to eliminate NERC/NESC violations to the extent possible. It is anticipated some existing light-duty steel H-Frame structures will be replaced with taller structures. Preliminary design will analyze installing steel dead-end structures every 5 to 10 miles to prevent cascading failure.

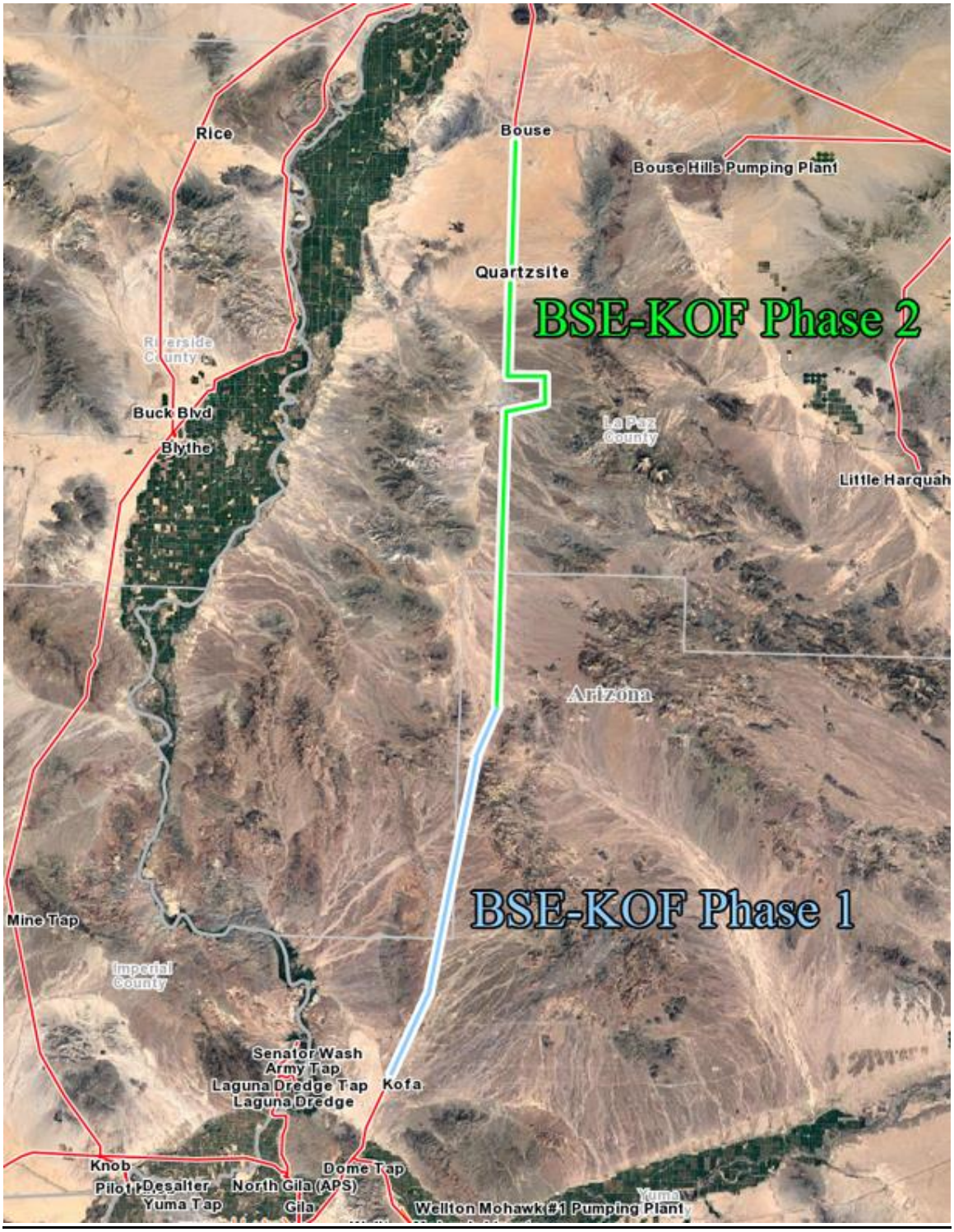


Figure 12 Bouse-Kofa Conceptual Project Phasing Map

8.3 Bouse-Kofa Maintenance Report

Western Area Power Administration
Geographic Information System

July 3rd, 2018 BSE-KOF 161kV G5200 Maintenance Report

Maintenance Performed in 2018

	Anchor	Brace	Crossarm	Foundation	Guy	Insulator	Phase/Conductor	Pole	Pole Hardware	Signs	Static Wire	TOTALS
Adjusted/Modified												0
Repaired												0
Replaced												0
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0

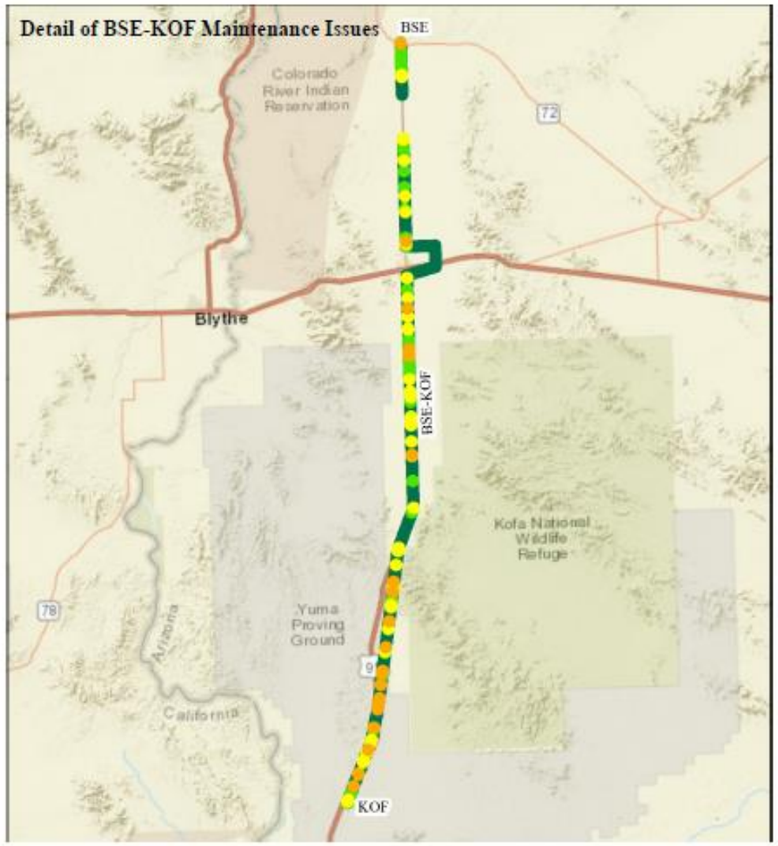
Note: Totals include RADDS projects and maintenance items.

2018 Inspection Progress

	Structures
Inspected	668
Uninspected	1
Total	669
99%	

Outstanding Maintenance in 2018

Row Labels	C	D	E	Grand Total
Anchor				0
Brace	44	6		50
Crossarm	22	7		29
Guy	8			8
Insulator	27	1		28
Phase/Conductor				0
Pole	33	10		43
Pole Hardware	6	1		7
Signs	2			2
Static Wire	4	4		8
Vibration Damper				0
Grand Total	146	29	0	175



Maintenance Priority Codes

A	Good or like new. No action required.
B	Minor defect. Monitor degradation.
C	Moderate defect. Rehabilitation or replacement recommended as scheduled maintenance.
D	Serious defect. Repair, reinforce, or replace as soon as possible.
E	Risk to public safety or system reliability.

8.4 Seed Funded Projects

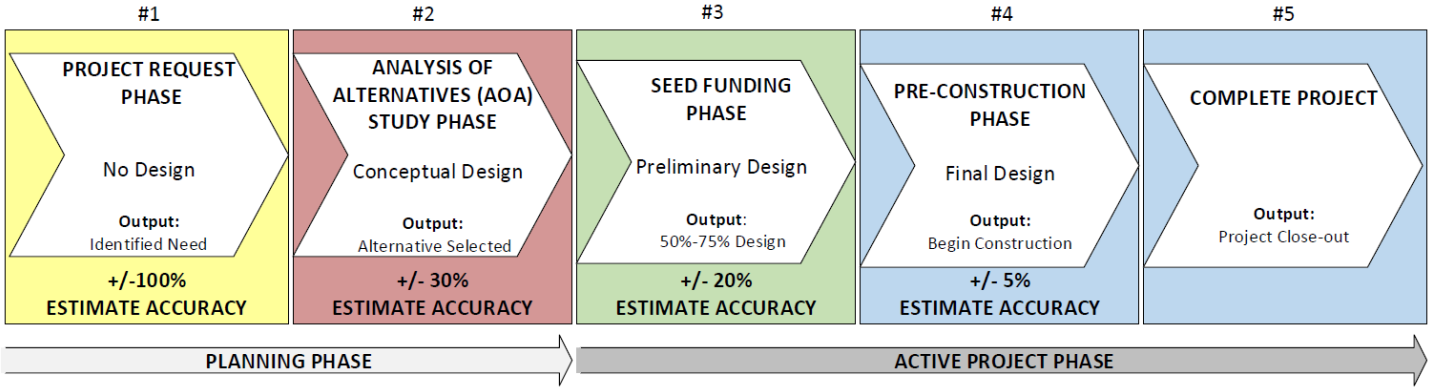
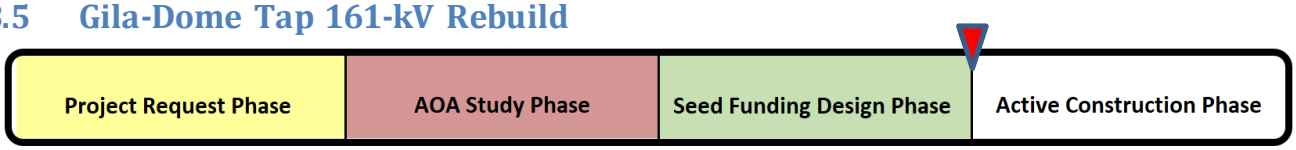


Figure 13 Project Life Cycle with Estimate Accuracy Progression

8.5 Gila-Dome Tap 161-kV Rebuild



Project Name	AOA Phase Estimate	Revalidated Estimate [A]	Seed Funds [B]	Prepayment Vote Amount [C]
Gila-Dome Tap 161-kV Rebuild	$7,450,000	$7,630,000	$500,000	**$7,130,000**

[A]-[B] = [C]

Cost Category	Project Budget	Percent of Budget
Administrative	$540,000	7%
Earned Value Management (EVM)	$0	0%
Design	$180,000	2%
Environmental	$130,000	2%
Land and Land Rights	$180,000	2%
Government Furnished Equipment (GFE)	$1,470,000	20%
Construction	$4,730,00	65%
Commissioning Activity	$30,000	0%
Subtotal	$7,260,000	
Management Reserve (5%)	$370,000	
TOTAL PROJECT BUDGET	**$7,630,000**	

Gila (GLA) to Dome Tap (DME) is a single circuit, 7.6 mile, 161-kV transmission line segment of the overall Parker-Gila 161-kV line built in 1943. The line runs through agricultural, residential, and commercial property as well as hills and flat low desert terrain. The northern line section crosses Highway 95, the Union Pacific Railroad, and the Wellton Mohawk Canal.

Originally constructed with wood H-frame structures, maintenance activities have replaced all but 16 of the structures with light-duty steel. Ten NESC/NERC violations have been identified along the 300 kcmil hollow core copper conductor.

Project Scope (Based on 75% design package):

- Replace 7.6 miles of 300 KCMIL hollow core copper conductors with 336.4 kcmil ACSS conductors
- Install light-duty steel H-frame structures, replacing the remaining 17 wood structures on the line
- Three Light-duty steel structures will be replaced with new taller structures to rectify NESC/NERC clearance issues
- Replace one steel OGW in-kind
- Upgrade one steel OGW to OPGW to improve communications
- Replace all insulators and hardware
- Clear ROW access roads and pads
- Replace two take-off structures inside Dome-Tap substation

Conceptual Schedule Milestones

- 75% Design Package: September 2018
- Prepayment Customer Vote: December 2018
- 100% Design Package: March 2019
- Begin Construction: November 2019
- Complete Construction: May 2020
- Financial Closeout: November 2020

8.6 Kofa-Dome Tap 161-kV Rebuild

Project Name	AOA Phase Estimate	Revalidated Estimate [A]	Seed Funds [B]	Prepayment Vote Amount [C]
Kofa-Dome Tap 161-kV Rebuild	$5,360,000	$5,330,000	$500,000	**$4,830,000**

[A]-[B] = [C]

Cost Category	Project Budget	Percent of Budget
Administrative	$480,000	9%
Earned Value Management (EVM)	$0	0%
Design	$180,000	4%
Environmental	$130,000	3%
Land and Land Rights	$30,000	1%
Government Furnished Equipment (GFE)	$320,000	6%
Construction	$3,750,000	74%
Commissioning Activity	$190,000	4%
Subtotal	$5,080,000	
Management Reserve (5%)	$250,000	
TOTAL PROJECT BUDGET	**$5,330,000**	

Kofa (KOF) to Dome Tap (DME) is a single-circuit, 7.3-mile, 161-kV transmission line segment along the Parker-Gila 161-kV line built in 1943. The KOF-DME Transmission Line is located in western Arizona running south from the Kofa substation to the Dome Tap substation. The line was originally constructed with 300 kcmil hollow-core-copper conductor. Most of the wood H-Frame structures have been replaced with light-duty steel H-Frame structures, and only seven wood structures remain in service.

WAPA will replace existing copper conductor with 336.4 kcmil ACSS conductor, replace one steel overhead ground wire (OGW) with an optical overhead ground wire (OPGW), and install light-duty steel H-frame structures to replace the seven wood structures remaining in the line segment. WAPA will also install new light-duty steel H-frame steel structures as needed to correct NESC/NESC clearance issues not corrected by stringing new ACSS conductor. Access roads will be improved as needed.

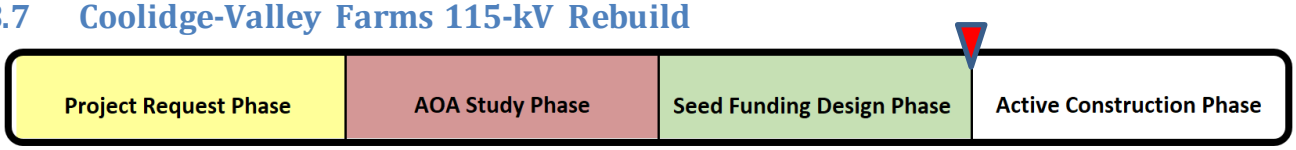
Project Scope (Based on 75% design package):

- Replace 7.3 miles of 300 kcmil copper conductor with 336.4 kcmil ACSS conductor
- Replace remaining wood pole structures with light-duty steel structures
- Replace one steel OGW in-kind
- Upgrade one steel OGW to OPGW to improve communications
- Replace all insulators and hardware
- Correct all NESC clearance violations
- Replace both structures inside Dome-Tap substation
- Clear ROW access roads and pads as required for construction and maintenance

Conceptual Schedule Milestones

- 75% Design Package: October 2018
- Prepayment Customer Vote: December 2018
- 100% Design Package: March 2019
- Begin Construction: November 2020
- Complete Construction: May 2021
- Financial Closeout: November 2021

8.7 Coolidge-Valley Farms 115-kV Rebuild



Project Name	AOA Phase Estimate	Revalidated Estimate [A]	Seed Funds [B]	Prepayment Vote Amount [C]
Coolidge-Valley Farms 115-kV Rebuild	$4,800,000	$3,350,000	$800,000	$2,550,000

[A]-[B] = [C]

Cost Category	Project Budget	Percent of Budget
Administrative	$240,000	8%
Earned Value Management (EVM)	$0	0%
Design	$200,000	6%
Environmental	$210,000	7%
Land and Land Rights	$70,000	2%
Government Furnished Equipment (GFE)	$110,000	3%
Construction	$2,220,000	70%
Commissioning Activity	$130,000	4%
Subtotal	$3,180,000	
Management Reserve (5%)	$170,000	
TOTAL PROJECT BUDGET	***$3,350,000****	

**Total Project Budget reflects current market value to salvage the existing copper conductor and related hardware.*

Coolidge to Valley Farms (COL-VAF) is a single circuit, 6.1-mile, 115-kV transmission line segment of the Coolidge to Oracle (COL-ORA) 45-mile transmission line. The existing structures are mainly wood H-frame structures with a 4/0 copper conductor and two overhead ground wires (OGW). The rebuild effort will include the replacement in-kind of existing deteriorated wood pole structures. Replacement of the new wood poles will be located in the same location as the existing poles to avoid environmental and access concerns.

The existing copper conductor rated at 88 MVA will be upgraded to Cardinal 954 kcmil aluminum conductor steal reinforced (ACSR) conductor rated at approximately 180 MVA with the addition of one new overhead optical ground wire (OPGW) and one standard OGW.

The scope also includes minor substation work at the terminal ends of the line to upgrade or replace equipment required to achieve the increased capacity on the conductor. This includes but is not limited to jumper replacements. Work at each substation also includes communication upgrades in the control rooms to land and integrate the new OPGW.

Project Scope (Based on 50% design package):

- Replace 6.1 miles of 4/0 copper conductor with 954 kcmil ACSR conductor and new insulators and hardware
- Replace one steel OGW in-kind
- Upgrade one steel OGW to OPGW to improve communications
- Replace wood structures in-kind where replacements are required or to support the new conductor
- Upgrade deteriorated cross arms assemblies with glue-laminated (glulam) cross-arms
- Install new steel angle, 4” x 3 ½” x 5/16” x 14’-6” long (pole-to-pole ties) between H-frame structures to support new OPGW and OGW
- Clear ROW access roads and pads as required for construction and maintenance
- Correct all NESC/NERC clearance violations

Conceptual Schedule Milestones

- 50% Design Package: September 2018
- Prepayment Customer Vote: December 2018
- 100% Design: February 2019
- Begin Construction: October 2019
- Complete Construction: March 2020
- Financial Closeout: October 2020

9. RATE ANALYSIS

9.1 Rates Introduction

WAPA must establish rates sufficient to cover operating, maintenance and purchase power expenses and repay capital investments in generation and transmission facilities within the allowable period.

Capital investments are repaid independent of funding source – both appropriations and alternative financing such as prepayments. Repayment begins the fiscal year following the in-service date of the capital investment.

Parker-Davis Project:
Parker-Davis Project (P-DP) uses a formula rate; meaning the rate is calculated each year with updated financial and sales inputs. The P-DP rate is forward looking, which considers a 5-year forecast of annual expenses and repayment of capital investments, including replacements.

P-DP uses a "mortgage-type" amortization to calculate the annual principal and interest to be included in the rate. Repayment of capital investments includes existing unpaid investments as well as projections of future investments identified in the 10-Year Plan. P-DP replacements are required to be repaid within 40 years, based on a weighted-average service life, while additions are required to be repaid within 50 years.

Intertie Project:
The Intertie Project (Intertie) uses a stated rate; meaning once the rate is calculated, it is kept in place until no longer sufficient. The rate is reviewed annually to determine sufficiency. Similar to P-DP, the Intertie rate is also forward looking but considers the projected annual expenses and capital investments for the next 50 years.

Intertie uses the "pinch-point" repayment methodology. The pinch-point year is when a significant required payment is due for a capital investment and therefore the annual revenue requirement is the highest. Repayment of capital investments includes existing unpaid investments as well as projections of future investments. Replacements are required to be repaid by their service life according to the Federal Hydropower Replacements Book and additions are required to be repaid within 50 years. The current pinch-point year for Intertie is fiscal year (FY) 2020, when most of the original capital investment in the project requires repayment.

9.2 Analysis of Capital Investments

The projects in the 10-Year Plan are analyzed to determine their rate impact. Project costs, including 'Interest during Construction', and in-service dates are used in the analysis. Estimated principal and interest from the projects in the 10-Year Plan is divided by typical sales for the period to determine the rate impact.
In the analysis, the annual rate impact for each project is displayed. For the P-DP rate, an average of the amounts in the 5-year rate window would determine the rate impact of the 10-Year Plan.

The Intertie rate analysis only reflects payments of interest before the FY 2020 pinch-point to maximize the amount of principal applied to the original capital investment in the project. After FY 2020, interest and principal will be collected for the investments in the 10-Year Plan.

9.3 Results of Analysis

Q: Are the amounts on the rate impact worksheet incremental or cumulative?

A: The 'Prior Year Projects (Pending Closeout)/RRADs' line items show the cumulative rate impact, these are composed of multiple projects with varying in-service dates combined into a single line item.

Q: What are 'Prior Year Projects (Pending Closeout)/RRADs'?
A: This amount represents prior 10-year Plan projects that have not yet been closed out and RRAD projects.

Q: Why are some projects on the rate impact worksheet excluded (no dollar amount) from the rate analysis?
A: These projects have in-service dates beyond the years shown in the 10-Year Plan.

Q: What does the amount for 'FY19 Rate without Future Capital' represent for P-DP?
A: This amount is the FY 2019 rate with only annual expenses and repayment on existing capital investments; it excludes the repayment of future capital investments. The rate impacts from the individual projects can be added to this amount to estimate what the FY 2019 rate would have been based on the 10-Year Plan.

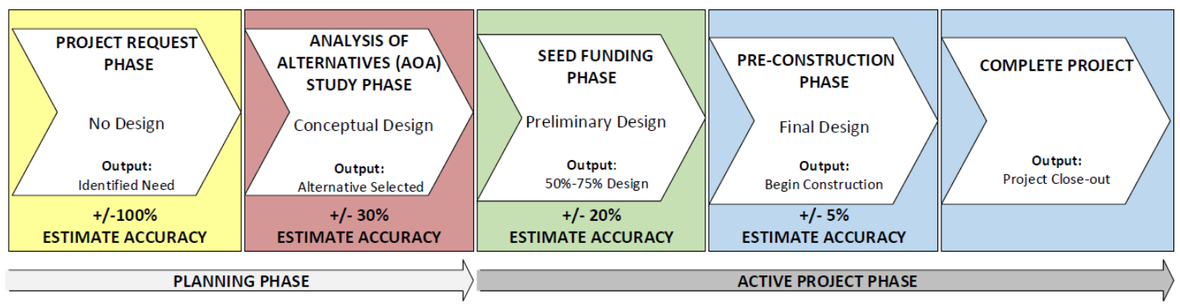
Q: How are service lives for replacements determined? How often are service lives evaluated?
A: Service lives are determined using the Federal Hydropower Replacements Book. The manual is reviewed periodically and was last updated in 2017.
(https://www.usbr.gov/power/data/2017_Federal_Hydropower_Replacements_Book_BW_1.1.pdf)

9.4 Formal 10-Year Spend Plan

10-Year Plan, Costs in Thousands of Dollars
P-DP & Intertie Projects

PROJECT	PREPAYMENT BUDGET	PROJECTED TOTAL	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Mesa Substation Remediation	3,535	1,954										
Tucson Substation Rebuild	6,957	9,173										
Gila-Knob 161-kV T-Line Reroute	2,728	3,527										
Black Point Mesa Reroute	1,307	2,203	28									
Parker-Davis Facility Rating Year 2	8,525	7,711	50									
Crossman Peak Microwave Facility	4,525	4,587	3,207	50								
Liberty Series Capacitor Bank Replacement	6,595	9,857	2,622	100								
Gila Substation 161-kV to 230-kV Rebuild	17,223	20,296	1,367	1,637								
Gila-Wellton Mohawk I-8 Crossing Rebuild	7,242	7,535	429	26								
Coolidge-Valley Farms 115-kV Rebuild	3,350	3,350	2,523	719	50							
Gila-Dome Tap 161-kV Rebuild	7,630	7,630	6,289	1,126	2							
Kofa-Dome Tap 161-kV Rebuild	5,330	5,330	350	4,000	851	50						
Bouse Upgrade Project	45,015	45,015	816	6,633	21,069	7,247	2,186	4,170	2,473	421		
Bouse-Kofa 161-kV Rebuild PHASE-1	13,260	13,260		500	7,172	5,132	456					
Bouse-Kofa 161-kV Rebuild PHASE-2	13,260	13,260		500		7,172	5,132	456				
Parker-Blythe 161-kV #2 Rebuild PHASE-1	18,542	18,542				237	17,336	805	164			
Parker-Blythe 161-kV #2 Rebuild PHASE-2	18,542	18,542				237		17,336	805	164		
Parker-Blythe 161-kV #2 Rebuild PHASE-3	18,542	18,542				237			17,336	805	164	
Parker Substation 161-kV Replacements	5,000	5,000							250	2,000	2,450	300
Blythe-Headgate Rock #1 line 161-kV Rebuild	23,900	23,900							1,195	9,560	11,711	1,434
Rogers-Coolidge 230-kV Reconductor	6,000	6,000								2,460	3,360	180
Parker Substation 230-kV Replacements	5,000	5,000								500	4,000	500
FISCAL YEAR (FY) TOTALS			**17,681**	**15,291**	**29,144**	**20,312**	**25,110**	**22,767**	**22,223**	**15,910**	**21,685**	**2,414**

1. Cost in Thousands of Dollars
2. Cost to Date 08/01/2018



9.5 Parker Davis Estimated Rate Impact

FY19 Rate without Future Capital $ 17.88 / kW-Year

PROJECT	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Prior Year Projects (Pending Closeout)/RRADs	$ 0.17	$ 0.30	$ 0.50	$ 0.59	$ 0.70	$ 0.79	$ 0.89	$ 0.99	$ 1.09	$ 1.18
Mesa Substation Remediation	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03
Tucson Substation Rebuild	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15
Gila-Knob 161-kV T-Line Reroute	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06	$ 0.06
Black Point Mesa Reroute		$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03
Parker-Davis Facility Rating Year 2		$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12
Crossman Peak Microwave Facility			$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.07
Gila Substation 161-kV to 230-kV Rebuild			$ 0.33	$ 0.33	$ 0.33	$ 0.33	$ 0.33	$ 0.33	$ 0.33	$ 0.33
Gila-Wellton Mohawk I-8 Crossing Rebuild			$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12	$ 0.12
Coolidge-Valley Farms 115-kV Rebuild				$ 0.05	$ 0.05	$ 0.05	$ 0.05	$ 0.05	$ 0.05	$ 0.05
Gila-Dome Tap 161-kV Rebuild				$ 0.13	$ 0.13	$ 0.13	$ 0.13	$ 0.13	$ 0.13	$ 0.13
Kofa-Dome Tap 161-kV Rebuild					$ 0.09	$ 0.09	$ 0.09	$ 0.09	$ 0.09	$ 0.09
Bouse Upgrade Project									$0.80	$ 0.80
Bouse-Kofa 161-kV Rebuild PHASE-1						$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22
Bouse-Kofa 161-kV Rebuild PHASE-2							$ 0.22	$ 0.22	$ 0.22	$ 0.22
Parker-Blythe 161-kV #2 Rebuild PHASE-1								$ 0.33	$ 0.33	$ 0.33
Parker-Blythe 161-kV #2 Rebuild PHASE-2									$ 0.33	$ 0.33
Parker-Blythe 161-kV #2 Rebuild PHASE-3										$ 0.33
Parker Substation 161-kV Replacements										
Blythe-Headgate Rock #1 line 161-kV Rebuild										
Rogers-Coolidge 230-kV Reconductor										
Parker Substation 230-kV Replacements										
Total	**$ 0.41**	**$ 0.69**	**$ 1.41**	**$ 1.68**	**$ 1.88**	**$ 2.19**	**$ 2.51**	**$ 2.94**	**$ 4.17**	**$ 4.60**

P-DP 5-year Rate Window

9.6 Intertie Estimated Rate Impact

FY19 Rate without Future Capital $ 1 / kW-Year

PROJECT	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Prior Year Projects (Pending Closeout)/RRADs	$ 0.04	$ 0.04	$ 0.15	$ 0.21	$ 0.26	$ 0.31	$ 0.36	$ 0.42	$ 0.47	$ 0.52
Liberty Series Capacitor Bank Replacement			$ 0.28	$ 0.28	$ 0.28	$ 0.28	$ 0.28	$ 0.28	$ 0.28	$ 0.28
Total	**$ 0.04**	**$ 0.04**	**$ 0.43**	**$ 0.49**	**$ 0.54**	**$ 0.59**	**$ 0.64**	**$ 0.70**	**$ 0.75**	**$ 0.80**

10. APPENDICES

10.1 DSW Wood Pole Data

Inspected Wood Pole Ratings

As of July of 2018, there are approximately 5,751 wood structures in DSW's Transmission service region. This includes two-pole and three-pole structure types, culminating for over 12,000+ individual wood poles. Of those, approximately 50% have been inspected. Of those inspected it is estimated that 38%, or 4,371 wood poles, need to be replaced. Referring to the table below, all of the "D" and "E" rated structures need replacement along with an estimated 50% of the "C" rated poles.

WOOD POLE RATING						
DESCRIPTION	A	B	C	D	E	TOTAL
Structures Inspected (Wood)	733	614	850	650	2	**2849**
Uninspected						**2902**
Wood Poles Replaced 2017						
Crossarms Replaced 2017						
X-Braces Replaced 2017						
						5751

A – Good or like new. No action required.
B – Minor defect. Monitor degradation.
C – Moderate defect. Rehabilitation recommended as scheduled maintenance.
D – Serious defect. Repair, reinforce, or replace as soon as possible.
E – Risk to public or system reliability.

Projected Wood Pole Ratings

The table below is the projected rating of all wood pole structures, considering the inspected poles to date as the sample group. Assuming the inspection results stated above are representative of all wood poles in DSW's Transmission System, then an estimated 38% (2,174) of all wood pole structures in the system require replacing.

PROJECTED WOOD STRUCTURE RATINGS						
DESCRIPTION	A	B	C	D	E	TOTAL
Wood Pole Structures	1480	1239	1716	1312	4	**5751**

Wood Pole Annual Replacements:

Using the GIS data, DSW replaces approximately 200-300 wood poles a year through the RRADS program.

Replacement Goals South of Parker:

- FY18: Blythe-Knob 156 structures
- FY19: Blythe-Knob 132 structures
- FY20: Blythe-Knob 136 structures
- FY21: Blythe-Knob 56 structures; Bouse-Kofa 56 structures

10.2 DSW Service Region Maintenance Report

Western Area Power Administration
Geographic Information System

October-December Fourth Quarter 2017 G5200 CartoPac Maintenance Report

4th Quarter Maintenance Performed

	Anchor	Arm/Bridge	Brace	Crossarm	Distribution Apparatus	Foundation	Guy	Insulator	Leg Member	Phase/Conductor	Pole	Pole Hardware	Signs	Static Wire	Totals
Adjusted/Modified															0
Repaired															0
Replaced															0
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Totals include RADDS projects and maintenance items.

Key Performance Indicators	#	%
Incoming Maintenance	128	100
Maintenance Performed	0	0
Maintenance Added to Backlog	128	100

Added to Backlog | Removed from Backlog

4th Quarter Incoming Maintenance

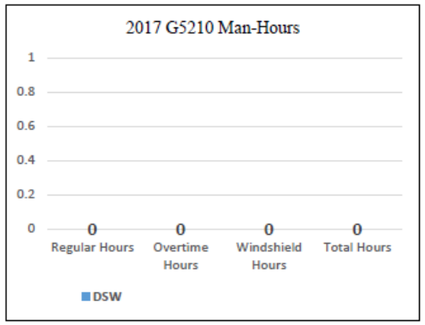
	Anchor	Arm/Bridge	Body Extension	Brace	Crossarm	Distribution Apparatus	Foundation	Guy	Insulator	K Member/Window	Leg Member	OPGW	Phase/Conductor	Pole	Pole Hardware	Signs	Static Wire	Vibration Damper	Totals
C	1			29	23			1	15				5	30		4	3		111
D	1			1	2			1	9					2			1		17
E																			0
Totals	2	0	0	30	25	0	0	2	24	0	0	0	5	32	0	4	4	0	128

DSW Total Outstanding Maintenance Backlog

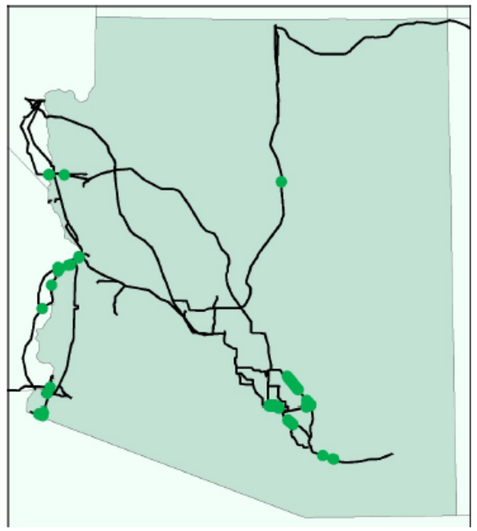
	C	D	E	Totals
Anchor	72	5		77
Arm/Bridge	26			26
Body Extension	11	11		22
Brace	1188	42	1	1231
Crossarm	852	98		950
Distribution Apparatus	17	1		18
Foundation	69	2		71
Guy	228	8		236
Insulator	766	47		813
K Member/Window	4	2		6
Leg Member	22	6		28
OPGW	9			9
Phase/Conductor	46	26		72
Pole	1692	772	7	2471
Pole Hardware	141	13		154
Signs	47	3		50
Static Wire	122	31	1	154
Vibration Damper	51			51
Totals	5363	1067	9	6439

Maintenance Priority Codes

A	Good or like new. No action required.
B	Minor defect. Monitor degradation.
C	Moderate defect. Rehabilitation recommended as scheduled maintenance.
D	Serious defect. Repair, reinforce, or replace as soon as possible.
E	Risk to public safety or system reliability.



4th Quarter Maintenance Performed



Map Detail of DSW Outstanding Maintenance